

# Electronic Warfare

## Emitter Sites & Resources

The Atlantic Test Ranges (ATR) operates multiple emitter sites to supply EW simulations for use by RDT&E and training programs. These emitters can be stand-alone or used with visual targets supplied by ATR. Emitters include fixed and mobile assets such as the Triple Ground Threat Emitter; shipboard and mobile threat emitters, the Automated Communications Test System (ACTS) and the recently upgraded Battlefield Communications Simulation System (BCSS). Many of these resources are mobile, for use around the country and the world, and provide real-world threat scenarios for testing or training exercises.

### fixed, local and remote emitter systems

The ATR emitters systems are ground-based threat radar simulators that support Electronic Warfare (EW) test and training requirements. The systems include the Fixed Emitter System (FES) and the Local Emitter System (LES), both located at the Cedar Point complex; the Remote Emitter System (RES) is located at Point Lookout, Md., 18 nautical miles south of ATR. The FES, LES and RES systems provide a realistic Electronic Combat environment. Controlled centrally from the EW workstation at ATR, these systems provide additional radar emitter density and greater signal complexity, and use Combat Electromagnetic Environment Simulator (CEESIM) software to define threats and run EW simulations.

- FES and RES frequency range: 2 - 18 GHz
- LES frequency range: 150 - 450 MHz and 700 MHz to 18 GHz
- Signal density: up to 64 simultaneous emitters from the system
- PRI range: 1 - 600,000 microseconds, with up to 1024 stagger levels
- Multiple PRI modulation segment types include stable, jitter, discrete jitter stagger, switching, periodic and pulse bursts
- Pulse width range: 23 nanoseconds to 99 microseconds
- Multiple antenna scan types include steady, conical, sector, circular, raster, palmer, helical and spiral
- Nominal ERP: 90 dBm at 2 GHz to 110 dBm at 18 GHz

Fixed emitters at Cedar Point



Local emitters at Cedar Point



Remote emitters at Point Lookout



Transmitter antennas at the Special Signals Facility



### automated communications test system (ACTS)

The Automated Communications Test System (ACTS) provides test signals and communications transmissions for RDT&E and fleet training and exercise support. ACTS provides test signals to stimulate threat warning receiver, RF direction finding systems and jammer systems aboard airborne aircraft. ACTS can be used for antenna calibration, calibration verification, direction of arrival, jammer response time, battlefield simulation and fleet exercise support.

- Frequency range: 2 MHz to 2 GHz
- Modulation types include AM, FM, CW, pulse, FSK, PSK, QAM, SSB
- Signal density: up to 16 simultaneous signals
- High-speed switching capability: GPS-timed synchronized

### for more information

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# Electronic Warfare Emitter Sites & Resources

## mobile simulators

### Triple Ground Threat Emitters AN/UPQ-8(V)

Triple Ground Threat Emitters provide portable threat emitter simulation of hostile missiles, seaborne radar signals and ground radar sites in support of aircrew training, electronic support measures operator training and fleet training exercises. Completely portable and computer-controlled, they are contained in lightweight, transportable, waterproof cases and each can be configured as a single, dual or triple threat emitter. Antenna assemblies are mounted on a motorized tripod. Portable in a standard pickup truck, two-man setup of the emitters can be completed in less than 30 minutes.



- Capable of optical tracking and remotely-controlled slaving
- Simulates selected land- or sea-based acquisition, track and missile guidance emitters and various gun systems
- Provides multiple-threat bearings and increases threat density
- Nominal ERP: 110 dBm
- Frequency Range: 4.5 - 5.3, 6.2 - 6.6, 7.8 - 9.6 GHz

### Mobile Threat Emitter System (MTES)

The MTES systems simulate over-the-horizon threats and can be used in conjunction with Atlantic Targets and Marine Operations (ATMO) targets to simulate coastal defense, cruise missile sites and high-interest surveillance emitters. Computer-controlled for multiple threat simulations, MTES can be used as a stand-alone threat simulator or to augment threat density scenarios.



The emitter is fully weatherproof for shipboard use and is easily portable, with a gas-powered generator for remote and field-use.

- Frequency range: 2.9 - 3.1, 4.9 - 5.1, 7.8 - 9.6 GHz
- Provides multiple-threat bearings
- Selectable preloaded threat parameters
- Nominal ERP: 103 dBm

### Battlefield Communications Simulation System (BCSS)

The BCSS provides automated communications simulations to support DoD training exercises. It is computer-controlled, with scripted voice and data messages. Featuring a transit case configuration for transportation and operation, BCSS can be remotely-controlled.



- Frequency range: 2 MHz - 2.4 GHz
- Output power: up to 100W
- Text-to-speech engine for scenario development
- AM, FM, CW and SSB analog modulation
- FSK, PSK, QAM, Pulse, TDMA and CDMA digital modulation
- Real-time audio inject
- Fixed, mobile, transportable
- Iridium satellite and GPS capabilities
- Desert camouflage vehicle configuration with onboard ECU and 10kW generator

### Mobile Remote Emitter Simulator (MRES) AN/UPT-4(V)5

The MRES provides a mobile high-power ground-based threat EWV simulator capability to support aircraft and ship electronic system testing and combat crew training. It uses Combat Electromagnetic Environment Simulator (CEESIM) software to define threats and run EWV simulations. MRES provides additional radar emitter density and greater signal complexity, and creates a realistic Electronic Combat environment.



- Frequency range: 2 - 18 GHz
- Nominal ERP: 90 dBm at 2 GHz to 110 dBm at 18 GHz
- Signal density: up to 64 simultaneous emitters
- PRI range: 1 - 600,000 microseconds, with up to 1024 stagger levels
- Multiple PRI modulation segment types include stable, jitter, discrete jitter stagger, switching, periodic and pulse bursts
- Pulse width range: 23 nanoseconds to 99 microseconds
- Multiple antenna scan types include steady, conical, sector, circular, raster, palmer, helical and spiral
- Capable of receiving active Electronic Countermeasures (ECM) transmissions